

**WELL ABANDONMENT
FOR
THE ANTIOCH FORD
UNDERGROUND STORAGE TANK SITE
at
1400 WEST 10th STREET
ANTIOCH, CALIFORNIA**

**Prepared by:
TRIDENT ENVIRONMENTAL AND ENGINEERING, INC.
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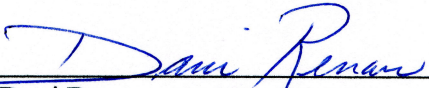
March 2005

**WELL ABANDONMENT
FOR
THE ANTIOCH FORD UNDERGROUND STORAGE TANK (UST) SITE
at
1400 West 10th Street
ANTIOCH, CALIFORNIA**

The material and data in this report were prepared under the direction of the undersigned.

Trident Environmental and Engineering, Inc.





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March 2005

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1.0 INTRODUCTION

This Well Abandonment Report for the Antioch Ford Underground Storage Tank (UST) Site at 1400 West 10th Street, Antioch, California, documents the abandonment of the wells on site by destruction.

After approval of the Closure Report/No Further Action Addendum submitted to the Central Valley Water Board in March 2004, the wells were abandoned in November 2004, in line with the Board's policy. Abandonment was achieved by drilling out the wells and grouting the boreholes, per Contra Costa County Well Destruction Guidelines.

A site location map, and a site layout plan are presented as Figure 1.

All work described, interpretations, conclusions and recommendations in this report were performed under the direction of a California Registered Professional.

2.0 PERMITS

Well Permit Applications for the Abandonment of the six wells onsite were submitted to the County on November 9, 2004, including a Health and Safety Plan for the project. The plan is presented in Appendix A.

The permits were issued by the County requiring that the wells must be drilled out and the boreholes grouted. Since the P wells were installed in backfill without any gravel pack, the County agreed that if the pipe could be removed by pulling the PVC out, then the remaining borehole could be grouted without any over-drilling. Permits were issued on November 16, 2004. Copies of the Permits are presented in Appendix B.

3.0 FIELD METHODOLOGY

The drilling was awarded to Woodward Drilling Co. out of Rio Vista. The work commenced on November 19, 2004. The cover for well P-3 could not be easily removed.

Groundwater Levels

The water levels in the other five wells were measured prior to destruction. The measurements are presented below in Table 1.

Table 1. Groundwater Measurements

Well	TD*	Depth to Groundwater*	T-o-C Elevation**	Groundwater Elevation**
MW-1	18.5	5.95 ft	13.61	5.95
MW-2	30.0	6.22 ft (eastern well)	13.64	7.42
MW-3	30.0	5.46 ft. (northern well)	13.45	7.99
P-1	10.8	6.39 ft	13.84	7.45
P-2	9.0	6.22 ft	13.67	7.45
P-3	10.5	not measured		

* ft below top of Casing (T-o-C)

** above mean sea level

Calculating the groundwater gradient based on the three MW wells. Based on a three point solution, the groundwater was flowing towards the southeast; S62°E, at a slope of 0.0065 ft/ft.

Well Abandonment

When the rig arrived onsite, it was recognized that the well P-3 was placed under the building overhang and the rig mast could not be raised above the well, thus it was impossible to drill out the well or extract the PVC. No work was done on P-3 until a variance could be obtained from the County inspector.

Work commenced on the other wells. The concrete seals for P-1 and P-2 were broken up and the Christy boxes extracted. At both wells, the cable was attached to the PVC well piping, and the casing broke. It was impossible to pull out, so the wells were drilled to 11 feet. Then the MW wells were drilled out in the following order: MW-1, MW-2, and finally MW-3.

After the wells had been drilled out, William Alejandro, the Contra Costa County Health Department Inspector arrived to observe the grouting. The position of P-3 was shown and he agreed to give a variance of necessity to grout the well in place. The P-3 well and the remaining

boreholes were grouted with cement with a 3% bentonite mix. The signed Permits are evidence of the Final Approval by the Contra Costa County Health Department. The final approval is for the work permitted, here, Well Abandonment. No other forms are provided by the county. The Signed Permits are presented in Appendix B.

The field notes with a log of events is presented in Appendix C.

Disposal

The cuttings from the excavation were initially to be placed in the planter bed near the building. However the amount generated was beyond the capacity and was too clayey for the planter. The cuttings, the Christy boxes, concrete and asphalt was place into 55 gal drums. Five drums of cuttings and debris were generated.

While grouting MW-1, groundwater displaced much of the grout and flooded. The excess water was pumped into drums. Four drums were used to contain the excess water. The water was mixed, tested for pH because of the concrete and was in acceptable limits was released to the sewer system. [The hydrocarbons in the groundwater were low enough for closure, and thus were below the disposal limits]

A composite sample from the drums was obtained on December 1, 2004 and latter analyzed. The results are presented in Table 2. A copy of the analytical results are presented in Appendix D.

Table 2. Waste - Analytical Results

	TPH-g	Benzene	Toluene	Ethyl benzene	Xylenes	MTBE	TPH-d	TPH-mo	Pb
EA-SC	14 ^g	ND	0.013	ND	0.0094	ND	120 ^{g,b}	680	8.9

Notes:

ND = not detected

Soils - reported in mg/kg (ppm)

^g strongly aged gasoline or diesel range compounds are significant

^b diesel range compounds are significant; no recognizable pattern

^e oil range compounds are significant

The drums were disposed in the Keller Canyon Landfill, on March 8, 2005. Copies of the manifest and disposal receipts are presented in Appendix E.

4.0 GEOTRACKER

The wells were resurveyed per the GeoTracker requirements. The site was claimed by Trident acting as the RP's agent on March 10, 2005. The survey and well data were tabulated and will be uploaded to the GeoTracker site. The GeoTracker required survey data; the GEO_XY, GEO_Z and GEO_WELL files are presented in Table 3. The laboratory will upload the analytical data from all samples taken and analyzed since January 2001. The Surveyor's Report is presented as Figure 2.

The GEO_XY, GEO_Z and GEO_WELL files, the laboratory files for the analysis performed on 3/14/02, and 1/27/03, 9/16/03, and the facility map were uploaded on to the GeoTracker system by April 13, 2005. The data is currently pending review by the Water Board before being finalized for the site.

5.0 PROJECT LIMITATIONS

This report is for the sole use of the client and its agents. In compliance with State and Federal regulations, *Trident* prepared this report as a third-party independent consultant. Employees, state and local agencies and others supplied the data for preparation of this report. *Trident* worked under the assumption that all data and reference material supplied were true and accurate, and that all relevant environmental information was disclosed to *Trident* during this investigation. All conclusions drawn by *Trident* were interpretations of the data supplied, and subject to the data's accuracy. *Conflicts in the reported data and/or conclusions that flow from that data have been noted in the report.*

This report was prepared in compliance with current procedures and accepted practices of the industry. Although every level of effort has gone into reducing risks, potential environmental problems and a certain level of risk may still exist at any level of effort.

Physical changes to a property, from the condition at which it existed during the time our investigation was accomplished, can be brought about by natural or anthropogenic causes. Additionally, the standards of work, which are acceptable to local governing authorities, may be raised during the passage of time, and what is acceptable at this time may not be in the future.

Judgments leading to conclusions and recommendations are generally made with an incomplete knowledge of the subsurface conditions present. More extensive studies including additional subsurface investigation can tend to reduce the inherent uncertainties associated with studies of this type.

Our services were conducted in a manner consistent with the level of care and skill ordinarily practiced by members of the profession under like circumstance. No other representation, express or implied, and no warranty or guarantee is included or intended in this report. The conclusions and recommendations submitted in this report are based upon sound engineering judgment using information obtained from our review of published data, site reconnaissance, and laboratory testing and analyses. These conclusions and recommendations may change as new, additional data is obtained.

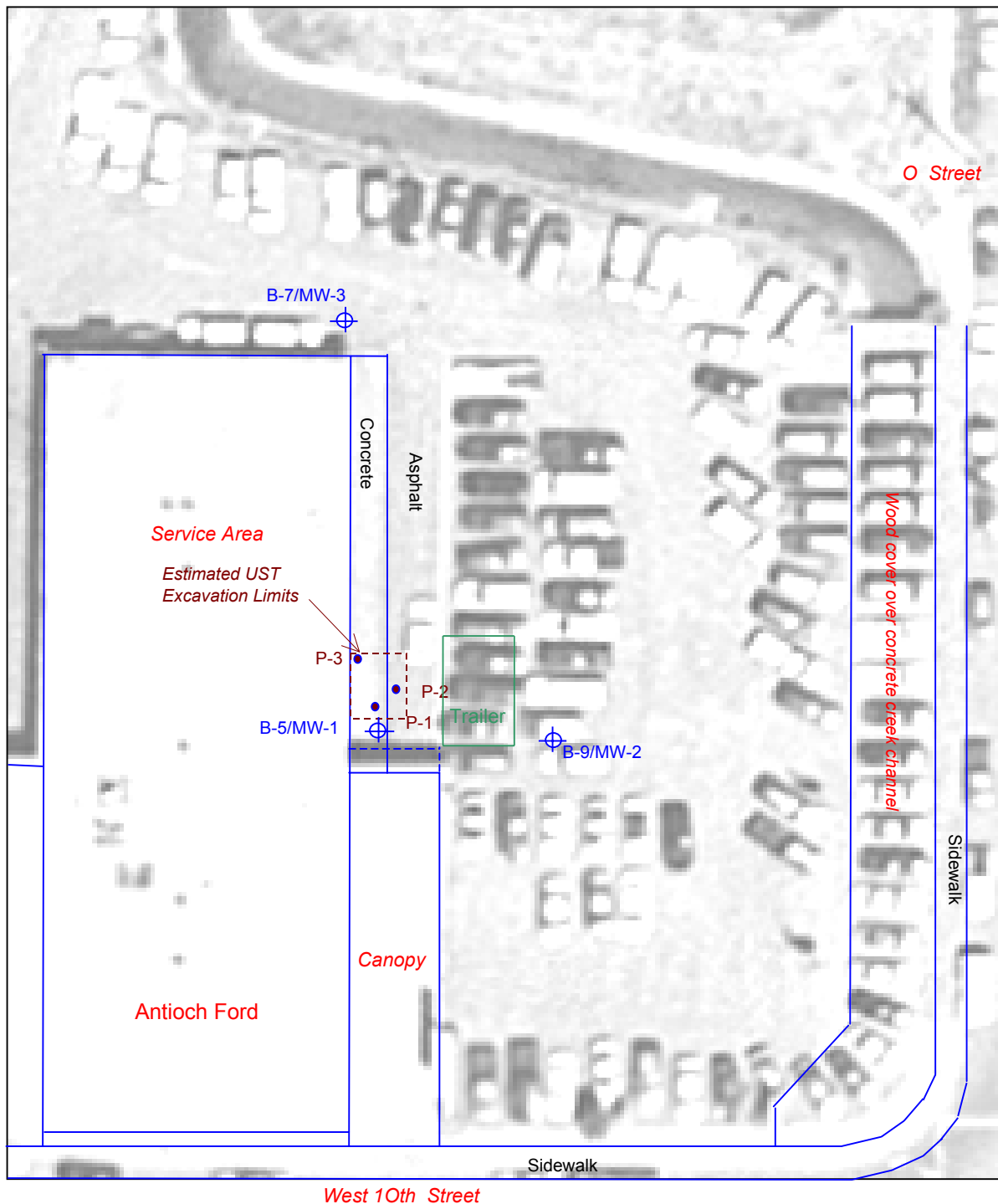
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Table 3. GeoTracker GEO Files

GEO_XY											
<u>GLOBAL ID</u>	<u>FIELD PT NAME</u>	<u>FIELD PT CLASS</u>	<u>XY SURVEY DATE</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>XY METHOD</u>	<u>XY DATUM</u>	<u>XY ACC VAL</u>	<u>XY SURVEY ORG</u>	<u>GPS EQUIP TYPE</u>	<u>XY SURVEY DESC</u>
T0601300769	MW-1	MW	2/10/05	38.0115649	-121.8239635	CGPS	NAD83	10mm+1.5ppm	Benchmark Consultants	LEG	
T0601300769	MW-2	MW	2/10/05	38.0115564	-121.8238235	CGPS	NAD83	10mm+1.5ppm	Benchmark Consultants	LEG	
T0601300769	MW-3	MW	2/10/05	38.0118490	-121.8239908	CGPS	NAD83	10mm+1.5ppm	Benchmark Consultants	LEG	
T0601300769	P-1	MW	2/10/05	38.0115751	-121.8239662	CGPS	NAD83	10mm+1.5ppm	Benchmark Consultants	LEG	
T0601300769	P-2	MW	2/10/05	38.0115773	-121.8239467	CGPS	NAD83	10mm+1.5ppm	Benchmark Consultants	LEG	
T0601300769	P-3	MW	2/10/05	38.0116095	-121.8239794	CGPS	NAD83	10mm+1.5ppm	Benchmark Consultants	LEG	
GEO_Z											
<u>GLOBAL ID</u>	<u>FIELD PT NAME</u>	<u>ELEV SURVEY DATE</u>	<u>ELEVATION</u>	<u>ELEV METHOD</u>	<u>ELEV DATUM</u>	<u>ELEV ACC VAL</u>	<u>ELEV SURVEY ORG</u>	<u>RISER HT</u>	<u>ELEV DESC</u>	<u>EFFECTIVE DATE</u>	
T0601300769	MW-1	2/10/05	13.61	DIG	NGVD 29	10mm+1.5ppm	Benchmark Consultants	-0.60			
T0601300769	MW-2	2/10/05	13.64	DIG	NGVD 29	10mm+1.5ppm	Benchmark Consultants	-0.31			
T0601300769	MW-3	2/10/05	13.45	DIG	NGVD 29	10mm+1.5ppm	Benchmark Consultants	-0.36			
T0601300769	P-1	2/10/05	13.84	DIG	NGVD 29	10mm+1.5ppm	Benchmark Consultants	-0.30			
T0601300769	P-2	2/10/05	13.67	DIG	NGVD 29	10mm+1.5ppm	Benchmark Consultants	-0.31			
T0601300769	P-3	2/10/05	14.33	DIG	NGVD 29	10mm+1.5ppm	Benchmark Consultants	na	elevation of rim/ground		
GEO_WELL											
<u>GLOBAL ID</u>	<u>FIELD POINT NAME</u>	<u>STATUS</u>	<u>GW MEAS DATE</u>	<u>DTFPROD</u>	<u>DTW</u>	<u>RISER HT</u>	<u>TOT DEPTH</u>	<u>GW MEAS DESC</u>	<u>SHEEN</u>		
T0601300769	MW-1	DEST	11/19/04		5.95	-0.60	18.5		N		
T0601300769	MW-2	DEST	11/19/04		6.22	-0.31	30		N		
T0601300769	MW-3	DEST	11/19/04		5.46	-0.36	30		N		
T0601300769	P-1	DEST	11/19/04		6.39	-0.30	10.8		N		
T0601300769	P-2	DEST	11/19/04		6.22	-0.31	9		N		
T0601300769	P-3	DEST	11/19/04		na	na	10.5	couldn't open cap	N		

FIGURES



B-5/MW-1
Monitoring Well, Sep 99

P-3
Monitoring Well, Jan 01

0 20 40
Scale (in feet)



Trident Environmental and Engineering, Inc.
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Dwg. Title:

Well Locations

Figure No.

1

Dsgnd by: Dani Renan

Drawn by:

Chkd. by:

Appvd by: Dani Renan

Location: 1400 West 10th Street, Antioch CA

Sh. of

Job No.: 1971.01

Date: November, 2004

Owned by: Gary Eames

Rev. No.

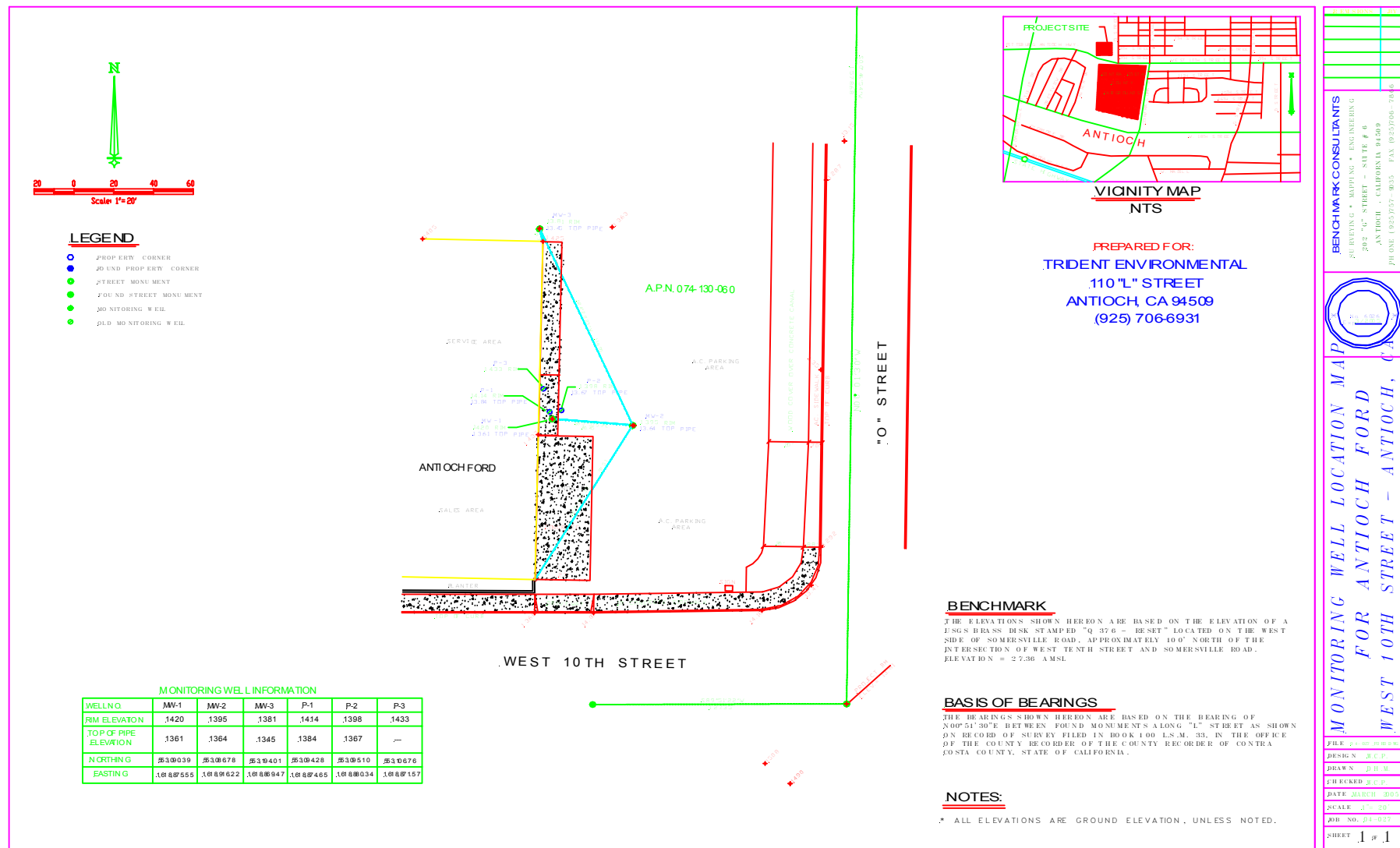


Figure 2. Surveyor's Report